

## PATENT COOPERATION TREATY

**PCT**

## INTERNATIONAL PRELIMINARY EXAMINATION REPORT

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## (PCT Article 36 and Rule 70)

Applicant's or agent's file reference 00847-02	<b>FOR FURTHER ACTION</b> See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/US03/37485	International filing date (day/month/year) 21 November 2003 (21.11.2003)	Priority date (day/month/year) 21 November 2002 (21.11.2002)
International Patent Classification (IPC) or national classification and IPC IPC(7): C23C 14/30 and US Cl.: 427/596, 255.23, 255.7, 454, 455, 456; 204/192.16, 192.22; 118/715, 723EB; 428/627, 632, 650, 653, 678, 680		
Applicant UNIVERSITY OF VIRGINIA PATENT FOUNDATION		

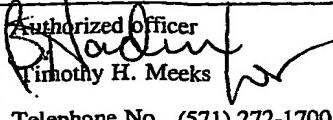
1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 5 sheets, including this cover sheet.

This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of \_\_\_ sheets.

3. This report contains indications relating to the following items:

- I  Basis of the report
- II  Priority
- III  Non-establishment of report with regard to novelty, inventive step and industrial applicability
- IV  Lack of unity of invention
- V  Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI  Certain documents cited
- VII  Certain defects in the international application
- VIII  Certain observations on the international application

Date of submission of the demand 18 June 2004 (18.06.2004)	Date of completion of this report 24 January 2005 (24.01.2005)
Name and mailing address of the IPEA/US Mail Stop PCT, Attn: IPEA/ US Commissioner for Patents P.O. Box 1450 Alexandria, Virginia 22313-1450 Facsimile No. (703) 305-3230	Authorized officer  Timothy H. Meeks Telephone No. (571) 272-1700

## INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/US03/37485

**I. Basis of the report**

## 1. With regard to the elements of the international application:\*

 the international application as originally filed. the description:pages 1-20 as originally filedpages NONE, filed with the demandpages NONE, filed with the letter of \_\_\_\_\_. the claims:pages 21-39, as originally filedpages NONE, as amended (together with any statement) under Article 19pages NONE, filed with the demandpages NONE, filed with the letter of \_\_\_\_\_. the drawings:pages 1-3, as originally filedpages NONE, filed with the demandpages NONE, filed with the letter of \_\_\_\_\_. the sequence listing part of the description:pages NONE, as originally filedpages NONE, filed with the demandpages NONE, filed with the letter of \_\_\_\_\_.

## 2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language \_\_\_\_\_ which is:

 the language of a translation furnished for the purposes of international search (under Rule 23.1(b)). the language of publication of the international application (under Rule 48.3(b)). the language of the translation furnished for the purposes of international preliminary examination (under Rules 55.2 and/or 55.3).

## 3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

 contained in the international application in printed form. filed together with the international application in computer readable form. furnished subsequently to this Authority in written form. furnished subsequently to this Authority in computer readable form. The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished. The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.4.  The amendments have resulted in the cancellation of: the description, pages NONE the claims, Nos. NONE the drawings, sheets/fig NONE5.  This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).\*\*

\* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17).

\*\* Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.

**INTERNATIONAL PRELIMINARY EXAMINATION REPORT**International application No.  
PCT/US03/37485**V. Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement****1. STATEMENT**

Novelty (N)	Claims <u>3-14,17,18,23,27,61 and 63</u>	YES
	Claims <u>1,2,15,16,19-22,24-26,28-60,62 and 64-73</u>	NO
Inventive Step (IS)	Claims <u>NONE</u>	YES
	Claims <u>1-73</u>	NO
Industrial Applicability (IA)	Claims <u>1-73</u>	YES
	Claims <u>NONE</u>	NO

**2. CITATIONS AND EXPLANATIONS**

Please See Continuation Sheet

**INTERNATIONAL PRELIMINARY EXAMINATION REPORT**International application No.  
PCT/US03/37485**Supplemental Box**  
(To be used when the space in any of the preceding boxes is not sufficient)**V. 2. Citations and Explanations:**

Claims 1, 2, 15, 16, 19, 25, 26, 29-31, 60, 62, 64, 68, and 70-73 lack novelty under PCT Article 33(2) as being anticipated by Rigney et al. (6,153,313).

The claimed invention is disclosed at the abstract, col. 5, lines 1-30, and col. 5, line 64 to col. 6, line 12, especially with respect to additions of Ti, Ta, and/or Zr to the bond coat alloy.

Claims 15, 16, 19, 62, 64, and 71-73 lack novelty under PCT Article 33(2) as being anticipated by EP 992614.

The claimed invention is disclosed at the abstract and paragraphs 0006, 0008, and 0009.

Claims 21, 22, 24-26, 28, 29, and 66-70 lack novelty under PCT Article 33(2) as being anticipated by Grassi (5,236,787).

The claimed invention is disclosed at col. 3, line 44 to col. 4, line 57.

Claims 21, 22, 24-26, 28, 29, and 66-70 lack novelty under PCT Article 33(2) as being anticipated by WO 97/40266.

The claimed invention is disclosed in the abstract and pages 12-13.

Claims 30-59 lack novelty under PCT Article 33(2) as being anticipated by Wadley et al. (5,534,314).

The structural limitations of the claimed apparatus are disclosed at the abstract, col. 6, lines 7-15, and col. 13, line 44 to col. 14, line 5.

Claims 30-59 lack novelty under PCT Article 33(2) as being anticipated by WO 99/65626.

The structural limitations of the claimed apparatus are disclosed at the abstract and pages 9 and 16-19.

Claims 3-11, 17, and 27 lack an inventive step under PCT Article 33(3) as being obvious over Rigney et al. in view of WO 99/65626 or Wadley et al.

The relevant disclosure is discussed above but fails to disclose using DVD to form the coatings. It would have been obvious to deposit the coatings using DVD in view of the advantages over EBPVD disclosed in WO 99/65626 and Wadley at the sections cited above.

**INTERNATIONAL PRELIMINARY EXAMINATION REPORT**International application No.  
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(To be used when the space in any of the preceding boxes is not sufficient)

Claims 12, 13, and 61 lack an inventive step under PCT Article 33(3) as being obvious over Rigney et al. in view of EP 1209321.

Provision of the claimed carbides in the insulation coat is not disclosed. However, because EP 1209321 teaches advantages for providing carbides in a zirconia insulation coat at the sections cited above, it would have been obvious to provide the claimed carbides to achieve these advantages.

Claim 14 lacks an inventive step under PCT Article 33(3) as being obvious over the prior art as applied in the immediately preceding paragraph and further in view of Wadley et al. or WO 99/65626.

The relevant disclosure is discussed above but fails to disclose using DVD to form the coatings. It would have been obvious to deposit the coatings using DVD in view of the advantages over EBPVD disclosed in WO 99/65626 and Wadley at the sections cited above.

Claims 18 and 63 lack an inventive step under PCT Article 33(3) as being obvious over EP 992614 in view of EP 1209321.

Provision of the claimed carbides in the insulation coat is not disclosed. However, because EP 1209321 teaches advantages for providing carbides in a zirconia insulation coat at the sections cited above, it would have been obvious to provide the claimed carbides to achieve these advantages.

Claim 23 lacks an inventive step under PCT Article 33(3) as being obvious over either Grassi or WO 97/40266 in view of either Wadley et al. or WO 99/65626.

The relevant disclosure is discussed above but fails to disclose using DVD to form the coatings. It would have been obvious to deposit the coatings using DVD in view of the advantages over EBPVD disclosed in WO 99/65626 and Wadley at the sections cited above.

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----- NEW CITATIONS -----

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